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A significant relationship may be said to exist between patterns of achievement (defined as underachievement, average achievement and overachievement) and perceived self (defined as the self as known to the person, as it exists now). A study, conducted at the Ontario Institute for Studies in Education, investigated this relationship, using as subjects 1,424 ninth grade students. The subjects self perceptions were inferred from ratings on each of the eight factors of the Perceived-Self Scale. Results indicated a significant relationship between patterns of achievement and perceived self. The finding that a positive feeling of acceptance by teachers and peers was more commonly associated with overachievement than with underachievement, demonstrates the importance of teachers' attitudes toward students in shaping their role in self concepts. Therefore, teachers should consider self concept as an important aspect of learning and development which the school, through its educational process, should seek to promote and foster in every child. (Author/LS)

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PATTERN OF ACHIEVEMENT AS RELATED TO THE PERCEIVED SELF

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PATTERN OF ACHIEVEMENT AS RELATED TO THE PERCEIVED SELF

On the basis of the self-concept theory of academic performance (Brookover, 1959; Lecky, 1961; Rogers, 1959), a significant relationship may be postulated to exist between patterns of achievement (defined here as under-achievement, average achievement, and over-achievement) and self perceptions. Some recent research also lends support to this hypothesis (Davidson and Lang, 1960; Brookover, 1962; Farquhar, 1963; Gill & D'Oyley, 1968; Payne and Farquhar, 1962; Piers & Harris, 1964; Roth, 1959; Shaw, Edson & Bell, 1960). The purpose of the present study was to investigate the relationship between patterns of achievement and some factorially defined dimensions of the perceived self as measured by the first section of the Self-Concept Scale (Gill & D'Oyley, 1968). (Perceived self is defined as the self known to the person as it exists now. It is considered to be a compound of the individual's attributes, feelings, and attitudes as experienced subjectively by him.) For the purpose of the present study, the individual's perceived self was inferred from his ratings on the Perceived-Self Scale, a section of the Self Concept Scale.

SAMPLE SELECTION

The study sample, (consisting of under-achievers, average achievers, and over-achievers,) was selected from 1,424 Grade 9 students (782 boys and 642 girls) who were enrolled in the Arts and Science Courses in five high schools in the City of Toronto. Their scores on the Canadian Academic Aptitude Test were used to develop regression equations for predicting their final average marks by school and by sex. The standard error of estimate was used to establish limits. Under- and over-achievers were defined as those students whose

final average marks were, respectively, lower or higher than their predicted marks by at least one standard error of estimate. Students showing minimum discrepancy were designated average achievers. The selection procedure permitted the control of mental ability (Tables 1 and 2) and the isolation of subgroups that were significantly different with regard to the final average marks (Tables 3 and 4). The selected groups were also found to be similar with respect to chronological age.

In the sample, 68 boys and 68 girls were selected in each achievement group. Each group was further divided into four ability levels, according to the students' I.Q.s as measured by the Henmon-Nelson Test of Mental Ability.

METHOD

The students' perceptions of themselves were inferred from their ratings on each of the eight factors[1] of the Perceived-Self Scale, which is comprised of 65 inventory-type statements. Students' responses to each of the statements were assumed to give a measure of their self-perceptions regarding the factorially determined sub-scales (factors), of the Perceived-Self Scale. Means and standard deviations were computed on each of the sub-scales and on the total Perceived-Self Scale according to pattern of achievement, sex, and ability level. The analysis of data for each sub-scale and for the total Perceived-Self Scale was carried out by applying the randomized factorial design of the three-way analysis of variance. This technique permitted simultaneous testing of hypotheses regarding the significance

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[1] Factor A-Achievement Related Characteristics
Factor B-Acceptance by Peers & Teachers
Factor C-Self-Confidence
Factor D-Originality
Factor E-Feeling of Adequacy
Factor F-Reaction to School Program
Factor G-Concentrating Ability
Factor H-Self-Satisfaction

of variations in patterns of achievement, sex, mental ability, and of interactions between or among these variables. The major null hypothesis tested in each case was that there are no significant differences between or among the subgroups of students (determined by their patterns of achievement, sex, mental ability, or any combination of these three factors) with respect to the mean score obtained on any of the sub-scales or on the total of the Perceived-Self Scale.

Hypotheses

For the purpose of employing the statistical measures properly, the following hypotheses were set up:

1. Significant differences exist among under-achievers, average achievers, and over-achievers with respect to their mean scores on various sub-scales of the Perceived-Self Scale.
2. No significant differences exist between boys and girls with respect to their mean scores on the various sub-scales of the Perceived-Self Scale.
3. No significant differences exist among students of different ability levels with respect to their mean scores on the various sub-scales of the Perceived-Self Scale.
4. No significant interaction exists between or among the three variables under consideration; namely, pattern of achievement, sex, and mental ability.

The mean scores for different achievement levels on the various sub-scales and on the total Perceived-Self Scale, along with the number of items in each sub-scale, are presented in Table 5. As expected, the mean scores of over-achievers were highest on every sub-scale except

Factor D, "Originality." The mean scores of the average achievers were next, and those of the under-achievers were lowest. On all factors except "Originality," the mean scores of the three groups were statistically significant beyond the .01 level.

The mean scores for each sex on the various sub-scales and on the total Perceived-Self Scale, along with the number of items in each sub-scale, are given in Table 6. No significant differences were found between boys and girls with respect to their mean scores on any sub-scales, except for Factors A and D, "Achievement-Related Characteristics" and "Originality," respectively, where the mean difference was significant beyond the .01 level. The direction of the mean difference on Factor A (Achievement-Related Characteristics) suggested that girls (44.28) were superior to boys (42.20) in this respect. However, on Factor D "Originality", the boys (25.03) rated themselves higher than the girls (23.88). It may be mentioned here that a high mean score on Factor D is indicative of a person who perceives himself to be original and inventive. Enjoyment of participation in class discussions and independence in decision-making are also associated with this factor.

The hypothesis that there is no relationship between perceived self and mental ability was tested by comparing the mean scores of students falling in the various ability levels. As shown in Table 7, no significant differences were found among students of different ability levels with respect to their mean scores on the various sub-scales and on the total Perceived-Self Scale except on Factor G,"Concentrating Ability", for which the mean difference was statistically significant at the .01 level. The nature of the relationship between mental ability and self-perceptions of concentrating ability seemed to be curvilinear, indicating a "dip" in the middle quarters of

ability level. The mean scores of students in the extreme ranges of mental ability were almost equal.

The hypothesis that there is no relationship between the perceived self and the interaction between achievement patterns and sex was accepted for all sub-scales of the Perceived-Self Scale. In other words, the differences among the mean scores of students at all achievement levels were independent of sex.

As expected, no significant differences were found in the mean scores of the various subgroups determined by achievement pattern and ability level for the various factors of the Perceived Self Scale except on Factor G, Concentrating Ability. As shown in Table 8 and Figure 1, the normative trend of average achievers obtaining higher mean scores than under-achievers was reversed for students in the upper quarter of ability level.

The hypothesis of no significant difference among the mean scores of under-, average, and over-achieving boys and girls of different ability levels and sex was accepted for all factors of the perceived-self scale. In other words, no significant interaction was found to exist between or among any of the three variables, namely, pattern of achievement, sex of student, and mental ability.

CONCLUSION

The present investigation has shown that the pattern of achievement, defined in terms of discrepancies between predicted and actual levels of achievement, is significantly related to perceived self as inferred from the Perceived-Self Scale. The results of the study support this conclusion with such convincing uniformity that the importance of the self-concept in the educational process seems to need more emphasis than is presently given to it.

The finding that a positive feeling of acceptance by teachers and peers was more commonly associated with over-achievement than with under-achievement points out the importance of teachers' attitudes toward students in shaping the self-concepts of their students. Therefore, teachers should consider self-concept as a vital and important aspect of learning and development which the school through its educational process, should seek to promote and foster in every child.

TABLE 1

MEANS AND STANDARD DEVIATIONS OF IQS[a] FOR UNDER-, AVERAGE, AND OVER-ACHIEVERS ACCORDING TO SEX OF STUDENT

Achievement Group	Boys			Girls		
	N	Mean	SD	N	Mean	SD
Under-Achiever[b]	66	112.01	9.57	62	113.61	10.68
Average-Achiever	68	112.35	9.14	68	113.64	9.98
Over-Achiever[b]	64	113.05	11.03	67	113.61	11.51
Combined Group	198	112.46	9.98	197	113.62	19.69

[a]As measured by Henmon-Nelson Test of Mental Ability - Form A.

[b]For a few students designated as under- and over-achievers IQs were not available.

TABLE 2

TWO-WAY ANALYSIS OF VARIANCE OF IQS AS MEASURED BY HENMON-NELSON TEST OF MENTAL ABILITY - FORM A

Source of Variation	df	Sum of Squares	Mean Square	F	Significance of F Ratio
Among Groups:	5	168.74	33.75	.32	n.s.
Type of Student	2	19.75	9.88	.10	n.s.
Sex	1	132.82	132.82	1.24	n.s.
Interaction	2	16.17	8.09	.08	n.s.
Within	389	41,595.53	106.93		
Total	394	41,764.27			

TABLE 3

MEANS AND STANDARD DEVIATIONS OF FINAL AVERAGE MARKS FOR UNDER-, AVERAGE, AND OVER-ACHIEVERS ACCORDING TO SEX OF STUDENT

Achievement Group	Boys			Girls		
	N	Mean	SD	N	Mean	SD
Under-Achiever	68	41.40	7.91	68	45.25	7.11
Average-Achiever	68	60.94	6.01	68	62.07	6.01
Over-Achiever	68	75.19	6.98	68	75.41	6.90
Combined Group	204	59.18	15.56	204	60.91	14.07

TABLE 4

TWO-WAY ANALYSIS OF VARIANCE OF FINAL AVERAGE MARKS

Source of Variation	df	Sum of Squares	Mean Square	F	Significance of F Ratio
Among Groups:	5	70,522.79	14,104.56	295.94	<.001
Type of student	2	69,972.81	34,986.41	734.08	<.001
Sex	1	307.15	307.15	6.44	<.05
Interaction	2	242.83	121.42	2.55	n.s.
Within	402	19,160.42	47.66		
Total	407	89,683.21			

TABLE 5

MEAN SCORES AND F RATIOS ON VARIOUS SUB-SCALES[a] OF THE PERCEIVED-SELF SCALE FOR UNDER-, AVERAGE, AND OVER-ACHIEVERS

Sub-Scale	Number of Items	Mean Scores: Under-Achievers (N=136)	Mean Scores: Average Achievers (N=136)	Mean Scores: Over-Achievers (N=136)	F Ratio
Perceived-Self					
A-Achievement-Related Characteristics	14	38.19	43.32	48.31	76.40**
B-Acceptance by Peers and Teachers	16	41.74	44.93	46.88	21.55**
C-Self-Confidence	8	23.96	25.60	27.13	24.14**
D-Originality	10	24.62	24.21	24.55	.40
E-Feeling of Adequacy	4	14.88	15.53	15.93	5.95**
F-Reaction to School Program	6	14.06	14.61	15.49	9.91**
G-Concentrating Ability	4	7.55	7.95	8.81	14.23**
H-Self-Satisfaction	3	7.44	8.17	8.77	16.39**
Total	65	172.44	184.32	195.86	43.77**

[a]Corresponding to factors A, B, C, D, E, F, G, and H of the perceived-self scale.

**Significant beyond .01 level.

TABLE 6

MEAN SCORES AND F RATIOS ON THE PERCEIVED-SELF SUB-SCALES[a] AND TOTAL SCALE BY SEX OF STUDENT

Sub-Scale	Number of Items	Mean Score		F-Ratio
		Boys (N=204)[b]	Girls (N=204)[c]	
A-Achievement-Related Characteristics	14	42.28	44.28	8.96**
B-Acceptance by Peers and Teachers	16	44.05	44.98	2.04
C-Self-Confidence	8	25.75	25.38	.97
D-Originality	10	25.03	23.88	8.15**
E-Feeling of Adequacy	4	15.44	15.45	.00
F-Reaction to School Program	6	14.72	14.72	.00
G-Concentrating Ability	4	8.04	8.16	.36
H-Self-Satisfaction	3	8.29	7.96	3.02
Total Perceived-Self Scale	65	183.60	184.81	.35

[a]Corresponding to factors A, B, C, D, E, F, G, and H of the perceived-self scale.

[b]The total number of boys included in the study sample.

[c]The total number of girls included in the study sample.

**Significant beyond .01 level.

TABLE 7

MEAN SCORES AND F RATIOS ON THE PERCEIVED-SELF SUB-SCALES[a] AND TOTAL SCALE BY ABILITY LEVEL

Sub-Scale	Number of Items	Mean Score				F Ratio
		Lower Quarter (N=102)	L-Middle Quarter (N=102)	U-Middle Quarter (N=102)	Upper Quarter (N=102)	
A-Achievement Related Characteristics	14	43.35	42.64	43.55	43.56	.42
B-Acceptance by Peers and Teachers	16	43.59	45.10	44.81	44.56	1.04
C-Self-Confidence	8	25.40	25.03	25.84	25.99	1.37
D-Originality	10	24.31	24.63	24.81	24.08	.66
E-Feeling of Adequacy	4	15.78	15.36	15.34	15.40	1.02
F-Reaction to School Program	6	14.62	14.44	14.74	15.08	1.04
G-Concentrating Ability	4	8.57	7.84	7.71	8.29	4.12**
H-Self-Satisfaction	3	8.33	7.92	7.95	8.29	1.34
Total	65	183.96	182.96	184.65	185.26	.23

[a]Corresponding to Factors A,B,C,D,E,F,G, and H of the perceived-self scale.

**Significant beyond .01 level.

TABLE 8

MEAN SCORES ON FACTOR G OF THE PERCEIVED-SELF SCALE SHOWING INTERACTION BETWEEN ABILITY LEVEL AND PATTERN OF ACHIEVEMENT

Ability Level	Factor G Concentrating Ability[a]		
	Under-Achiever (N=136)	Average Achiever (N=136)	Over-Achiever (N=136)
Upper Quarter	8.29	7.38	9.21
U-Middle Quarter	6.27	8.15	8.71
L-Middle Quarter	7.29	7.68	8.56
Lower Quarter	8.35	8.59	8.77

[a]Perceived-self scale (interaction significant at .01 level).

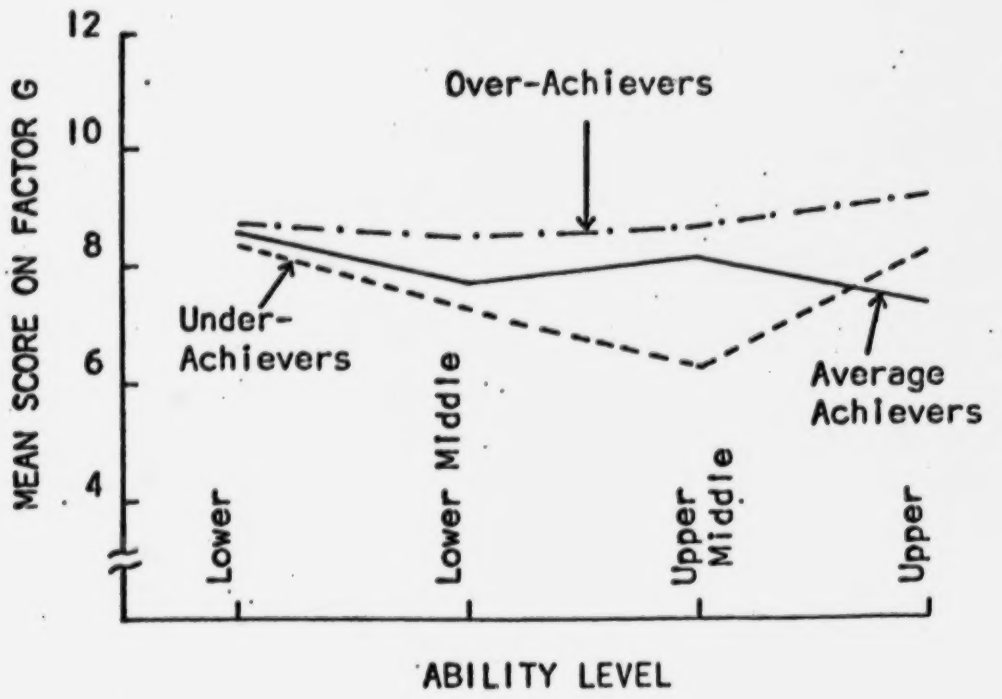

Fig. 1.--Mean scores for under-, average, and over-achievers at each level of mental ability showing signficant interaction between ability level and achievement pattern for factor G--concentrating ability.

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